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SURVEY OF THE ST. LOUIS PUBLIC SCHOOLS

Vol. III

HIGH SCHOOLS

By A. B. MEREDITH
Deputy Commissioner of Education, New Jersey

BOARD OF EDUCATION
ST. LOUIS, MO.
1917

Education
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1917

ORGANIZATION AND STAFF OF THE SURVEY

The organization of the work of the survey and the assignments of the members of the staff are as follows:

Dr. Charles H. Judd, Director of the Survey

General Statement.....Charles H. Judd

I. General Organization.....H. C. Morrison

II. Records, Observations and Tests of Schools

A. Elementary Schools

1. General

(a) Non-promotions and two-quarter Promotions.....Charles H. Judd

(b) Observations of Elementary School Instruction.....Geo. A. Mirick

(c) The Course of Study.....J. F. Bobbitt

2. Reading.....William S. Gray
3. Arithmetic.....Charles H. Judd
4. Handwriting.....F. N. Freeman

B. Special Schools.....W. F. Dearborn

C. High Schools.....A. B. Meredith

III. Administration

A. Supervisory Organization

1. Music.....J. Beach Cragun
2. Drawing.....F. H. Daniels
3. Physical Education.....Geo. W. Ehler

B. Divisions of Administration

1. Attendance Department.....H. C. Morrison
2. Department of Hygiene.....E. A. Peterson

C. Appointment of Teachers and Teacher Training.....Charles H. Judd

IV. Building

A. Construction.....W. R. McCornack
B. Hygiene.....F. B. Dressler
C. Use of Buildings for Classes.....S. O. Hartwell

V. Finance.....H. O. Rugg

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REPORTS OF THE SURVEY

The reports of the survey are grouped for publication in the following volumes:

Vol. I. Part 1. General Statement.....Chas. H. Judd
Part 2. Administration and Organization...H. C. Morrison
Part 3. Appointment of Teachers and Teacher Training.....Chas. H. Judd

Vol. II. Part 1. Non-promotions and Two-quarter Promotions in the Elementry Schools.Chas. H. Judd
Part 2. Observations of Elementary School Instruction.....Geo. A. Mirick
Part 3. The Curriculum Situation.....J. F. Bobbitt
Part 4. Reading.....William S. Gray
Part 5. Arithmetic.....Chas. H. Judd
Part 6. Handwriting.....Frank N. Freeman
Part 7. Special Schools.....Walter F. Dearborn

Vol. III. High Schools.....A. B. Meredith

Vol. IV. Finances.....H. O. Rugg
Part 1. Public School Costs in St. Louis
Part 2. The Business Management of the Public Schools

Vol. V. Part 1. Construction of School Buildings.W. R. McCornack
Part 2. Hygiene of School Buildings.....F. B. Dressler
Part 3. The Use of Elementary and High School Class Rooms.....S. O. Hartwell

Vol. VI. Part 1. Music.....J. Beach Cragun
Part 2. Drawing.....F. H. Daniels
Part 3. Physical Education.....Geo. W. Ehler
(Volume VI not yet published)

Vol. VII. Part 1. Child Accounting and Attendance...H. C. Morrison
Part 2. Medical Inspection.....E. A. Peterson

For information as to how copies of any of the above published volumes may be obtained, address—

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911 Locust Street
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FOREWORD

The survey of the St. Louis schools was projected by the Board of Education for the purpose of securing a body of facts for presentation to the public, primarily to aid in the passage of a bond issue of $3,000,000. The urgent need for new school buildings necessitated other sources of revenue than the usual ones open to the Board of Education, and an issue of bonds seemed to be the preferable method of securing additional funds.

In order that the voters of the city might be fully acquainted with the situation which had actuated the Board and its executive officers in proposing a bond issue, it was felt that a complete survey of the school system by disinterested experts, from outside the city, who would pass judgment not only upon the critical building situation but also upon the general financial condition of the schools and the efficiency of their organization, was necessary.

The following facts give a brief history of the survey:

Authorized by the Board of Education, May 11, 1916. (Official Proceedings, Volume XXII, page 976.)

Dr. Charles H. Judd appointed Director.

Survey of instruction completed by the close of the school term, June 16, 1916.

All other parts of the survey completed in early summer, 1916.

Preliminary report of Director to Board of Education, July 11, 1916.

Final reports filed with Board in August and September, 1916.

Cost of survey, ~~$9,020.07~~ 9,790.06 excluding printing of reports.

The printing of the survey under the supervision of the Superintendent of Instruction authorized April 10, 1917. (Official Proceedings, Volume XXIII, page 870.)

Survey printed and published December, 1917.

Vol. III

HIGH SCHOOLS

By A. B. Meredith

SUMMARY

By Chas. H. Judd

This chapter deals with the high schools. The high schools of St. Louis organized on the cosmopolitan plan represent a large investment in the opportunities of higher education. The cosmopolitan school is the most democratic form of high school organization.

The strict adherence to a curriculum which is elected by each student makes it difficult for the students to get the full benefit of the cosmopolitan opportunities, but results in a well ordered systematic arrangement of individual programs.

The high schools of the city are well organized and are all closely supervised from the central office. There is a high degree of uniformity in the courses and in the methods of work. Mr. Meredith suggests that it would be advantageous for the system to give the individual teachers more incentives to try experiments. He also recommends the organization of departments within the schools as a substitute for the present form of faculty organization under which the principal is the head of all departments.

Mr. Meredith finds the equipment in the high school capable of advantageous readjustment and he finds that it is unnecessarily large. The simpler equipment which he suggests seems to him better suited to educational ends.

The last half of this section of the report is devoted to detailed discussion of instruction in various departments. In general Mr. Meredith found the teachers well qualified for their work and instruction of a high order. He regards some of the curricula as too heavy.

The chapter closes with an elaborate series of recommendations.

HIGH SCHOOLS
By A. B. Meredith

The secondary or high school department of the St. Louis Public Schools consists of the units indicated in the following table:

Name	Date of Opening	Teachers	Enrollment Term Ending Jan. 31, 1916
Central	1853-1854	79	1585
McKinley	1903-1904	63	1452
Yeatman	1904-1905	64	1381
Soldan	1908-1909	88	2089
Cleveland	1915-1916	51	1217
Sumner (colored)	1875-1876	35	796
		380	8520

The ratio of high school enrollment to the total day school enrollment during the 15 years has increased since 1900-1901 from 2.96 per cent to 9.68 per cent. At the present time each school enrolls more pupils than the buildings originally were planned to accommodate and additional facilities will soon be necessary. The percentage of increase in high school enrollment over each preceding year for the past ten years has been as follows:

School Year	% of Increase	School Year	% of Increase
1905-1906	2.1%	1911-1912	.4%
1906-1907	7.8%	1912-1913	5.5%
1907-1908	2.9%	1913-1914	6.0%
1908-1909	13.0%	1914-1915	11.7%
1909-1910	10.5%	1915-1916	12.7%
1910-1911	8.8%		

TABLE I.—ENROLLMENT BY COURSES AND SCHOOLS

Courses	Preceding Half Years	Central	Cleveland	McKinley	Soldan	Yeatman	Sumner
Art	Sept., 1914	84	..	84	109	57	9
	Jan., 1915	91	..	92	85	70	7
	Sept., 1915	75	38	62	98	36	10
	Jan., 1916	60	42	55	84	40	8
Classical	Sept., 1914	26	..	22	20	11	0
	Jan., 1915	30	..	24	20	8	0
	Sept., 1915	27	16	14	26	10	0
	Jan., 1916	23	19	12	26	7	0
Commercial	Sept., 1914	288	..	214	173	214	42
	Jan., 1915	361	..	263	212	271	54
	Sept., 1915	275	200	170	209	222	63
	Jan., 1916	308	254	216	226	250	62
Domestic Science	Sept., 1914	182	...	267	294	189	148
	Jan., 1915	192	...	291	327	180	184
	Sept., 1915	162	168	202	286	168	234
	Jan., 1916	148	200	236	293	188	245
Manual Training	Sept., 1914	235	...	287	264	176	145
	Jan., 1915	223	...	359	289	190	166
	Sept., 1915	181	191	242	269	171	179
	Jan., 1916	169	211	276	267	197	185

TABLE I—*Continued.*—ENROLLMENT BY COURSES AND SCHOOLS.

Courses	Preceding Half Years	Central	Cleveland	McKinley	Soldan	Yeatman	Sumner
General	Sept., 1914	319	...	246	674	267	224
	Jan., 1915	443	...	253	721	348	216
	Sept., 1915	333	162	333	781	317	254
	Jan., 1916	382	190	342	813	396	241
Scientific	Sept., 1914	209	...	113	179	76	0
	Jan., 1915	246	...	138	198	76	0
	Sept., 1915	214	72	112	204	59	0
	Jan., 1916	219	94	116	242	60	0
College-Classical	Sept., 1914	0	0	0	9	0	0
	Jan., 1915	...	...	...	6	...	...
	Sept., 1915	...	...	...	2	...	...
	Jan., 1916	...	...	...	4	...	...
College Scientific	Sept., 1914	0	0	0	37	0	38
	Jan., 1915	0	...	...	25	...	40
	Sept., 1915	0	...	...	14	...	40
	Jan., 1916	0	...	...	12	...	50
Teachers Preparatory	Sept., 1914	18	0	0	16	5	0
	Jan., 1915	14	0	0	16	0	0
	Sept., 1915	0	0	0	12	0	0
	Jan., 1916	0	0	0	4	0	0

TABLE I—*Continued.*—ENROLLMENT BY COURSES AND SCHOOLS.

Courses	Preceding Half Years	Central	Cleveland	McKinley	Soldan	Yeatman	Sumner
2-year Commercial	Sept., 1914 ...	148	...	147	73	153	7
	Jan., 1915	186	...	190	73	192	4
	Sept., 1915 ...	229	127	122	86	140	5
	Jan., 1916	236	169	159	104	164	5
2-year Manual Training .	Sept., 1914 ...	...	...	23	9	39	0
	Jan., 1915	...	...	19	7	47	0
	Sept., 1915 ...	...	29	18	5	30	0
	Jan., 1916	...	19	20	13	38	0
2-year Domestic Science	Sept., 1914 ...	...	...	10	3	0	1
	Jan., 1915	...	...	8	3	...	..
	Sept., 1915 ...	...	...	3	2	...	..
	Jan., 1916	...	...	5	1	...	..
1-year Commercial	Sept., 1914 ...	59	...	40	0	40	0
	Jan., 1915	54	...	47	0	48	0
	Sept., 1915 ...	55	23	26	0	39	0
	Jan., 1916	40	19	15	0	41	0
Total for all Courses ...	Sept., 1914 ...	1568	...	1453	1860	1227	614
	Jan., 1915	1840	...	1684	1982	1430	671
	Sept., 1916 ...	1551	1035	1304	1994	1192	785
	Jan., 1916	1585	1217	1452	2089	1381	796

ORGANIZATION—ADMINISTRATION AND SUPERVISION

The cosmopolitan type of high school, as distinguished from the specialized high school, such as the manual training, commercial and technical schools found in some cities, is a characteristic feature of the St. Louis system. Each school follows identical curricula and in all essentials the equipment of every school is of the same general character. In the more recently constructed buildings, and especially in the Cleveland School, added experience in furnishing school rooms has effected some variation in particular pieces of apparatus, in the details of laboratory arrangement and in providing more complete opportunities for physical training. The Sumner High School, for colored youth, has in addition to the courses offered in other schools, a normal training course of two years, and a vocational automobile course of one-half year. Further, the six high schools are organized and administered in essentially the same manner; the textbooks are the same, and any given subject of instruction is taught from essentially the same point of view in all schools. Hence, a careful study of any one school will give all the necessary data for an understanding of the entire secondary system of the city.

This uniformity in the general plan of administration and in many details of classroom practice, as well as the common viewpoint, is due to several factors, the chief of which is undoubtedly to be found in the historical development of the high school system.

In 1853 the Central High School was opened, and during the succeeding years up to 1878, there were associated with it five branch high schools. From 1879 to 1882 two other branch schools were established which were later discontinued, and in 1892-93 the Central High School and the branch high schools were consolidated.

In 1904 the McKinley and Yeatman schools were opened in different parts of the city. In 1908-09 the Soldan school was occupied, and in 1915 the Cleveland school received its first classes.

It is but natural, therefore, although the newer schools added industrial arts to the program of studies, that the influence of the ideals, the curricula and the practices of the original high school would continue to be strongly felt in the newly established schools. On the other hand, the newer schools reacted upon the Central school by broadening its program of studies, but the total result of the interaction of one school upon the other has been to place a strong emphasis upon uniformity.

Another element tending in the same direction is the close relation that all the schools bear to the central office through the supervisor of secondary education, one of the Assistant Superintendents, who was formerly principal of the Central High School. For this able official there is throughout the entire high school system the most complete loyalty and respect. The stamp of his strong and vigorous personality is therefore in evidence in all the schools, and a feeling exists on the part of principals and teachers alike that conformity to established practices and to the official viewpoint should be the rule. The result is that without specific direction to the contrary no attempt is made to vary the curricula or the content of any given subject of instruction in the several schools. Whereas with high schools serving different constituencies and with pupils pursuing the same subjects with a variety of ends in view, a greater degree of variation would under the conditions bring each school nearer to its special problems and would doubtless make it much more effective. These problems would be apparent in part from a study of the distribution of pupils among the different courses in the various schools. And again, there is always the problem of meeting the needs of individuals by making up pro-

grams with special emphasis upon some one or two fields of knowledge or skill.

The spirit of uniformity is further promoted by frequent and regular meetings of the high school principals at which questions of internal administration are discussed and a general policy determined upon regarding the administration of the uniform curricula found in all schools. Although these meetings are not a part of the official administrative plan, and each principal is therefore free, subject to the central office, to administer his school in his own way, as a social whole, nevertheless, such frequent meetings as are held,—while admirable in developing a spirit of solidarity within the system, and while they account, in some measure, for the general high level in the quality of the instruction throughout the city,—tend to preserve a likeness in the several schools, especially in the absence of a positive supervisory policy to the contrary.

As a fourth and underlying element, from numerous individual conferences, there appeared to be a feeling that the general policy of the high school system was determined by a philosophy of education and of educational values which placed a premium upon a particular order of topics and of studies, and again upon a definite balance of studies within a curriculum, and finally by a notion often freely admitted, that in the last analysis education is largely a matter of mental discipline rather than a question of the adjustment of a pupil to his material, social and spiritual environment.

Many teachers seemed to be impressed with the idea that when a subject of study or an order of topics had been determined upon through a consideration of its relation to a system of thought, there was an inherent finality in the arrangement which prevented experimentation and question, and hence uniformity was expected. In but very few instances, and these were isolated, was it found that teachers or principals were at work experimenting with a new

order of topics within a given subject, or a different point of view regarding the same subject. Upon inquiry I learned that little encouragement was offered for such a procedure —uniformity must, therefore, result.

An instance of this general attitude is found in the fundamental idea back of every curriculum, that a study of some foreign language is a necessary part of a complete high school education, hence, at least two years of some foreign language is required of every pupil, irrespective of any possible use he may make of his knowledge. If a foreign language is studied at all, two years is an excellent curriculum, but why any foreign language for all pupils? The result is many small classes and many failures, with consequent high per capita cost and no practical gain, to many pupils.

Another example of the absence of adaptation to individual needs and a reflection of the prevailing viewpoint is seen in the case of physics. This subject is treated in the same manner for all pupils, boys and girls alike, and with no regard to the particular curriculum followed, and moreover, is required of all pupils. In 1909 a list of laboratory experiments which forms the core of the physics course was prepared by a committee of physics teachers representing each high school, and subsequently copyrighted by the Board of Education. Each experiment is outlined in detail and while some choice is given as to just what experiments may be taken in any given term, in each high school, nevertheless, the experiment chosen is to be done in the same manner. A high value is apparently placed upon the development of skill in laboratory manipulation and in the mathematical aspects of the subject, and relatively little attention is paid to the applications of the principles taught to the problems of everyday life. Physics is apparently thought of solely as a body of organized knowledge to be taught for its own sake. A number of teachers stated that they would welcome differentiated courses in this

subject, and even its omission by some pupils, but felt of course that conformity to the ideal for the city was expected of them. The subject and its particular development have apparently chief consideration and not what the subject plus the teacher may do for the boy or girl who is being trained to understand the material world in which he is placed.

All parts of the city, then, are served by the same type of school, with the result that wide opportunities are open to many because of the extensive program of studies offered in each school, while at the same time, because of the small number of pupils enrolled in many of the classes of the last two years, the per capita cost of instruction is relatively high. For example, in the Central High School in January, 1916, there were but two pupils enrolled in the eighth term of Spanish and five in the seventh term class. At the same time the seventh and eighth term classes in this subject at the Soldan High School enrolled three and four pupils respectively. In Greek at the Central School in the fifth term class there were two pupils and in the sixth term class at the McKinley School but one pupil. In Latin the condition was not much different, for at the McKinley School in the seventh and eighth term classes there were respectively five and eight pupils. To offset this condition a larger number of such classes may be assigned to a teacher (six instead of five), but even this plan means that the teacher taking an extra small class is not free to be assigned a larger one. If two small classes are assigned to one teacher in the same period, as is sometimes done, the financial situation is altered a little, but in the direction of economy.

The situation with respect to the languages in a single school, the Cleveland, is shown in the following table:

Terms	Latin	German	French	Spanish
5-8	16.1%	10.9%	7.8%	8%
1-4	83.9%	89.9%	92.2%	92%

The facts are as of June 1, 1916, and the figures are percentages of the total number of pupils pursuing each subject. One remedy for the situation would be to concentrate the instruction in certain languages as Greek and Spanish in one or two schools, but this plan would be a departure from the purely cosmopolitan type of school to which the city is committed. Another remedy would be to curtail the range of subjects any school may offer, since there are limits to the ability of the city to offer different subjects or four years of any one subject. Classes so small as some of those in Greek, for example, where 12 out of the 17 classes in the city have each 5 pupils or less and the remaining 5 classes have each 10 pupils or less, could be allowed to disappear in favor of more urgently needed classes.

The difference in the figures for the first four terms and the last four would not be as great if at least two years of some one language were not required of all pupils. In general such a situation as is shown above is inevitable under present conditions, and the facts are cited that the situation may be understood.

Mention has already been made of the uniform curricula in the different schools. That each school requires the same arrangement of subjects in what are called courses, and the fact that within these courses the options are few, chiefly in the choice of a language and in the third year between more science or more mathematics, tends to defeat the very purpose of the cosmopolitan type of secondary school. Pupils are required to choose definite courses, and having chosen a course it is difficult to change without loss through having to make up certain work omitted, so that the result is virtually the same as if the pupils were in attendance upon specialized schools, except that, of course, pupils do not have to travel from one part of the city to another.

There is another type of cosmopolitan school in which there is open to each pupil on a much freer elective basis the whole program of studies, including those generally termed aca-

demic, as well as the various forms of practical arts, both for boys and for girls, and also the commercial arts. Flexible curricula or courses are outlined in general terms, and according to principles which will insure a natural sequence of subjects, and secure the results from intensity of effort in a few carefully selected fields, with less emphasis upon others. Each pupil is studied and guided in a selection of a curriculum best suited to his individual needs, and the subjects taught are organized so as to contribute specifically to the ends sought by any well defined group of pupils. This plan of administration is, we believe, broader and more advantageous. The cosmopolitan idea is indeed present in the St. Louis schools and is most heartily to be endorsed. It is prominent in the social contact pupils have within the same school, and in the fact that each school offers the same program of studies that all offer.

General Supervision. The general supervision of the six high schools with a total of 394 teachers, as has been stated above, devolves upon one of the assistant superintendents. This official also supervises 15 elementary schools, a manual training and domestic science center and a special school, which together have 266 teachers. The number of schools and the variety constitute a task in supervision in which immediate personal influence in affecting the quality of classroom instruction is too limited because of other duties. In the elementary schools, with a curriculum uniform for all pupils the task is not so complex as that of the high school with its variety of subjects and activities, even though the program of studies in each high school is the same. Such personal knowledge of actual classroom work in the high schools as the superintendent may have can come from but occasional visits and much reliance must be placed upon reports of principals, and upon such results as appear in statistical tables.

These reports, which deal with facts of enrollment, failures, and grades given to various groups of pupils, are made half

yearly with other less extensive reports which are collected quarterly. All the reports are carefuly prepared and contain valuable information. They could be made of greater value if time were available for their full interpretation and if the results of such studies were promptly referred to the schools for conference and application.

Attention should be called in this connection to two very important and extensive studies which have been recently made by the assistant superintendent with the help of principals and teachers. One investigation dealt with the use of time by high school pupils and was published in the annual report of the Board of Education for 1914. An effort was made to ascertain how high school pupils used their time during the several days of the week. The statistics were taken to cover twenty-five inquiries of a general nature with regard to the time spent regularly or systematically, and special inquiries with reference to the time devoted to the preparation of the various subjects offered in the respective half years of each course. The results of the special study are being used by those in charge of the revision of the course of study, and many suggestions are given regarding the evenness or inequalities in the distribution of the various phases of the subjects through the successive half years in which they are studied. Some hints also are given concerning the relative difficulty of the subjects studied through the time required for their preparation.

One conclusion from the special study confirms general observation. A comparison of the average time spent by boys and by girls in the study of the various subjects shows that the girls spend on an average eight minutes more a day on each subject with a range of 1 to 35 minutes. The average time spent on a single subject by girls is 44 minutes, by boys 36 minutes, by both 40 minutes. This corresponds very closely to the estimated time used in school administration, viz., 43 minutes of preparation for 43 minutes of recitation. Another study is one dealing with the number of failures in

each subject in all the high schools, together with the distribution of grades in each subject, grouped by schools, by teachers and by terms for the school year ending June 30, 1915. The results have not been returned to the teachers, but when they are, much interesting material concerning the efficiency of instruction and the standards of teachers' marking will be at hand. Much self-examination should follow, and modifications made in practice, through a standardization of the marking system.

The secondary schools are a specialized department of the public school system with problems radically different from those of the elementary schools and the number of schools and of teachers is sufficient to warrant the assistant superintendent devoting his entire time to their general supervision. Opportunity would thus be afforded to guide developments in varying the content in the subjects of different curricula and in directing the attention of teachers very definitely to the question of method, a phase of school work generally neglected among high school teachers. This requires personal touch with conditions and also requires time.

It should be said, to avoid misunderstanding, that the general quality of instruction in the different classrooms is remarkably high. Teachers have been chosen with care and they are students of the subjects taught. At the same time they expressed themselves as desiring more personal contact with the superintendent in the discussion of their particular work, both in its relation to the immediate problem of the classroom and to the general policy of the city.

Administration. The executive head of each school is the principal who does no teaching, and who in most instances, has come up through the system and therefore is thoroughly conversant with its traditions and policies. The principal in each school is a broadminded, well trained and sympathetic administrator with a masterful comprehension of his particular problem. Each school has also an assistant principal who likewise does no teaching, but in general, attends to the

administrative detail of the school. Cases of discipline are referred by teachers to the assistant principal who also follows up and interviews all pupils who are backward in their work and who may have been referred to him by the pupil advisers. Usually when pupils have failed in two subjects as shown by the semi-quarterly reports, they come automatically to the attention of the assistant principal. Another duty of the assistant is to interview parents who come to inquire regarding pupil's work, or who may be sent for to assist in adjusting some difficulty of discipline or some delinquency. From the decision of the assistant principals appeals may be made to the principal, but such appeals are infrequent. In each school the assistant principal is a very efficient officer, and showed a complete grasp of the situation. In every case the principal spoke very enthusiastically of his assistant's work.

Pupil Advisers. The plan of pupil advisers is to be found in all high schools upon essentially the same basis. To each adviser from 20 to 30 pupils are assigned for educational guidance and help. The pupils' report cards, which are sent home twice each quarter, are distributed through the advisers who thus have an opportunity to keep in touch with each pupil under his charge and give any admonitions or commendations the conditions may warrant. Many of the advisers keep personal but unofficial records regarding pupils under their charge and frequently act as vocational counselors. Frequent conferences with the principal and assistant principal and a series of circulars of information keep the advisers in touch with the general administration of the school. In all its details this system is to be highly commended.

If the advisers could be assigned to pupils of the entering class earlier so that assistance could be given in the selection of the work to be taken, it is likely that fewer false choices would be made and the number of failures in first year work reduced. To these advisers then could well come some qualitative estimate from the elementary school of an entering pupil's

ability and of his special strength and weakness. To assign advisers after a pupil has been in school nearly a month is late to avoid beginning difficulties. Some such form as the following may prove helpful:

PUPILS' RECORD CARD

Name of pupil Age
Name of teacher
School

Note.—The teacher will express her judgment of the pupil regarding each of the following points, using the letter A. to indicate "conspicuously excellent;" B, "successful but not conspicuously;" C, "weak;" D, "conspicuously weak."

1. Reliability.
2. Industry.
3. Accuracy.
4. Ambition.
5. Special aptitudes (name them).
6. Manners.
7. Health.
8. Grasp of school work (*i. e.,* maturity and power of thought).
9. Any worth while thing done in or out of school without the compulsion of an older person, *i. e.,* ability to find something to do and ability to do it—intellectual, mechanical, commerical.
10. Regularity of school attendance.
11. Number of years spent in elementary school.
12. What the pupil proposes to do.

Ratings in examinations.

Arith. Pen. Spelling U. S. Hist. Geog. Eng.

To the Teacher: Cross out the following statements that do not apply:

This pupil is prepared for high school work.
This pupil should be allowed to try high school work.
This pupil is not recommended for high school work.

Special Assignments. The school day in general, consists of seven forty-five minute periods, although actually in some schools nine periods constitute the daily schedule. Each teacher, however, is in school but seven periods. The normal work of each teacher is 5 recitations daily with an extra period assignment which may be to the library or to a study room, except where some other duty is specified. The seventh period is for the preparation or correction of work. Among the special assignments which are practically the same in all schools and which require work either in school hours or after dismissal are the following:

A teacher in charge of the distribution of books to each class. A complete and accurate record and inventory is kept of all texts.

A teacher in charge of the distribution of supplies, who also has an accurate statement at all times of the supply situation.

A teacher who is responsible for the care of the library, spending at least one period a day there, and being assisted during the other periods by assigned teachers. Much time must necessarily be spent outside of school in this work.

To another teacher is given the preparation of the programs for auditorium exercises, which in all but the Yeatman School are occasional. This school holds daiiy exercises.

Other assignments are to the charge of athletic interests including their financial management, to the school paper and to the school annual, to pupils' organizations and to the social life of the school.

No extra compensation is granted for this work which the principals say is willingly done. From conversations with those teachers having special assignments an excellent spirit of co-operation and loyalty to the school and to the system was manifested.

Since recommendations for advancement in salary grade are dependent upon the recommendation of the principal, the assignment to particular tasks gives teachers a chance to dis-

play qualities of leadership and executive skill which may lead to larger salaries and to positions of greater responsibility.

Assignment of Classes. A new school term begins in September and February, respectively, and hence twice a year the daily time table of recitations for each school is completely rearranged. New classes, approximately 70 per cent of those completing the elementary school course, enter the various high schools, and must be assigned to recitation sections. Those pupils who have failed are required to repeat, the next half year, the subject in which they have failed, if they expect to be graduated, and provision must be made for them, so that even at the best the making of a workable schedule of classes is a complex and difficult undertaking. Other elements entering into the problem are the fact that teachers do not as a rule teach more than five periods a day, and the further fact that in all subjects the recitation sections are not to exceed 30 pupils, although they might well be larger in such subjects as penmanship, typewriting and bookkeeping. This increase would reduce the per capita cost in these subjects. The classes are larger in music and physical training.

The actual situation regarding the size of recitation sections may be seen from the accompanying table.

Sizes of High School Sections

Each vertical column shows the number of sections containing the group of students defined by the figures at the head of the column.

High School	Number of Students in Each Section											
	0–5	6–10	11–15	16–20	21–25	26–30	31–35	36–40	41–45	46–50	50+	Total
Central												
Recitation	26	62	211	277	415	719	94	19	5	9	33	1,870
Study	0	11	20	22	22	67	22	12	13	21	35	245
Cleveland												
Recitation	9	21	53	102	208	261	42	11	17	8	32	764
Study	52	41	32	20	20	13	14	7	1	1	0	201
Combination	2	26	63	67	96	170	246	43	7	7	0	727
McKinley												
Recitation	15	40	102	116	227	187	167	24	15	0	29	922
Study	0	8	1	2	3	15	2	2	3	7	37	80
Combination	0	2	7	9	82	106	254	151	34	25	30	700
Soldan												
Recitation	15	16	125	160	272	517	94	27	32	14	6	1,278
Study	11	15	0	4	13	12	54	42	30	22	29	232
Combination	5	5	5	15	45	158	279	256	166	33	7	974
Sumner												
Recitation	5	30	60	55	85	120	50	10	10	10	10	445
Study	0	10	10	5	10	0	0	0	0	0	5	40
Combination	0	0	30	30	55	125	125	95	5	10	..	475
Yeatman												
Recitation	40	91	116	228	194	215	39	15	14	8	29	989
Study	0	0	0	0	1	0	2	2	0	0	0	5
Combination	0	0	7	20	50	192	192	117	47	43	27	695
All High Schools												
Recitation	110	260	667	938	1401	2019	486	106	93	49	139	6,268
Study	63	85	63	53	69	107	94	65	47	51	106	803
Combination	7	33	112	141	328	751	1096	662	259	118	64	3,571
All High Schools												
All divisions	180	378	842	1132	1798	2877	1676	833	399	218	309	10,642

The 26 in the upper left-hand column means that there are 26 classes or sections or class periods in the 7 different courses with 5 or less pupils in the Central High School.

The Foregoing Table Reduced to Percentages

High School	Percentage of Students in Each Section										
	0–5	6–10	11–15	16–20	21–25	26–30	31–35	36–40	41–45	46–50	50+
Central											
Recitation	1	3	11	15	22	38	5	1	0.3	0.5	2
Study	0	4	8	9	9	27	9	5	5	9	14
Cleveland											
Recitation	1	3	7	13	27	34	5	1	2	1	4
Study	26	20	16	10	10	6	7	3	0.5	0.5	0
Combination	0.3	4	9	9	13	23	34	6	1	1	0
McKinley											
Recitation	2	4	11	13	25	20	18	3	2	0	3
Study	0	10	1	3	4	19	3	3	4	9	46
Combination	0	0.3	1	1	12	15	36	22	5	4	4
Soldan											
Recitation	1	1	10	13	21	40	7	2	3	1	1
Study	5	6	0	2	6	5	23	18	13	9	13
Combination	1	1	1	2	5	16	29	26	17	3	1
Sumner											
Recitation	1	7	15	12	19	27	11	2	2	2	2
Study	0	25	25	13	25	0	0	0	0	0	13
Combination	0	0	6	6	12	26	26	20	1	2	0
Yeatman											
Recitation	4	9	12	23	20	22	4	2	1	1	3
Study	0	0	0	0	20	0	40	40	0	0	0
Combination	0	0	1	3	7	28	28	17	7	6	4
All High Schools											
Recitation	2	4	11	15	22	32	8	2	1	1	2
Study	8	11	8	7	9	13	12	8	6	6	13
Combination	0.2	1	3	4	9	20	31	19	7	3	2
All High Schools											
All divisions	2	4	8	11	17	27	16	8	4	2	3

In the construction of the daily schedule of classes it does not appear that any successful effort has been made to have a class in any year subject such as English, algebra, plane geometry, etc., assigned to the same teacher for the entire year, or for two successive terms. A conscious exception to this condition exists more often during the last school year, or the seventh and eighth school terms, than in any other part of the high school course. It would be better, if pupils are to meet new teachers twice a year, that they do this during the latter part of the course rather than during the earlier terms. A prominent cause for so many pupils dropping out of school during the first year is their failure to become adjusted to the new order of administration, one feature of which is meeting several teachers daily instead of one. To change teachers in the middle of the year and thus create the possibility of meeting eight teachers in two terms, forces upon both pupil and teacher an undesirable situation. Many teachers regretted a condition which added to their difficulties in getting a close and intimate knowledge of their pupils and seemed to feel that whatever program making difficulties were in the way could be removed. Pupils of the senior year are better able to adjust themselves to new teachers and should not be given an advantage, over those who are less likely to remain in school.

On the other hand, evidences were found where the work assigned to teachers differed from term to term so that pupils did not always have a teacher in the subject he was best prepared to teach. The absence of a system of certification for particular subjects makes this condition legally possible. This changing of a teacher's work was especially marked in the commercial department where the large majority of the teachers are college graduates, who have added to their general academic preparation a technical knowledge of business subjects and skill in such commercial arts as typewriting, stenography, bookkeeping and penmanship. In those subjects especially which require a large degree of motor activity,

such as typewriting and penmanship, and in a subject like stenography, to be thoroughly effective, a teacher must be in constant practice. In saying this it is not asserted that high speed is the essential quality in the successful teaching of the commercial arts, but accuracy is important and this can come through constant practice. Moreover, in order that a teacher of business subjects may make his instruction vital, he must be in continued and active touch with business conditions for which his classes are making preparation. Not many teachers can keep this intimate touch and teach a commercial class for half a year and then the next half year be prepared to teach with equal effectiveness economics and civics, or psychology and ethics, or some other wholly unrelated academic subjects.

Commercial subjects are essentially vocational in their purpose and should be taught with this aim in mind and the results measured by the standards of actual business use. What the public demands in these subjects the school should furnish; hence, the teachers of these commercial arts must be specialists.

The penmanship at the Central High School is taught by such a specialist and the work is especially commendable. At the Yeatman High School the penmanship is taught by no less than ten teachers in seventeen classes. At the Soldan High School there are seven commercial teachers and, as is assumed in the other schools, each teacher in the commercial department is presumably prepared to teach any commercial subject that may be assigned to him. In theory the assignments are divided into three groups: bookkeeping and commercial arithmetic; stenography and typewriting; commercial law, commercial geography and commercial correspondence, and a teacher's work limited to some one of these fields. There are, however, sufficient instances of overlapping and of frequent change to call attention to the desirability in practice of a more specific assignment within a narrower field. A number of those teaching stenography are conscious of being able to do better work in teaching typewriting, and some of those teaching type-

writing would undoubtedly do better work if they were teaching bookkeeping. It is recognized that it is not always possible to make all assignments in accordance with the theory of specialization but it does seem as though the idea of developing specialists in at least those commercial subjects which especially emphasize motor skill should have closer attention in schedule making. A system of departmental heads with some administrative authority would aid in bettering this condition.

Another instance of division of interests in subjects vocational in character was found in the Cleveland High School, in connection with the home arts department. Two teachers, each qualified to teach sewing and cooking, were each assigned classes in both of these subjects, instead of having one teacher teach all the cooking and the other teach all the sewing. For the cooking classes the allowance was 6.25 cents per pupil per lesson and to be spent by each teacher. Had one teacher all the cooking the total allowance for the year could be more economically spent than it could be spent when each teacher spent her allowance independently. In the administration of the kitchen there was of necessity a divided responsibility which did not make for business efficiency. It is likely that this division was for the purpose of testing out each teacher to determine ultimate assignment.

Another problem in schedule making arises from the fact that there are four-year and two-year commercial courses. domestic art and science courses and manual training courses. This means that some recitations in subjects such as commercial law, which is a third year subject in the four year course, and a second year subject in the two-year course, contain pupils from both groups who differ in maturity. In the two-year manual training course, civics may come in either the first year or in the second year, while in the four-year course this subject comes only in the first half of the fourth year. The same condition is found with regard to this subject in the two-year domestic art and science course. Again,

in each of these courses history may be taken during the first year while in the four-year course the first work in history comes in the first half of the third year or in the fifth term. A similar situation arises in another department, that of foreign languages, because of the requirement of at least two years of a foreign language in each course for graduation. Pupils of the fifth and sixth terms of the third year are found in the recitation classes with pupils of the first and second terms, and but two months removed from the elementary school. Added to this condition is the fact that in some instances the advanced pupils have already had two years of foreign language study. The result of such a combination of pupils in a recitation group is to keep the level of instruction either up to that of the ability of the more mature pupils, in which case the probabilities of failure are multiplied for the younger group, or to keep the instruction at the level of the earlier pupils and not provide a sufficient task for the older pupils. Every effort should be exerted in roster making to bring together homogeneous groups of pupils, on the basis of degree of advancement, and according to the particular curriculum followed, assuming of course differentiated curricula. It is apparent that with the courses as now arranged that a separate class for the four-year pupils and the pupils of the shorter courses which include the same subjects would add expense, so that by the combination there is a financial economy.

No evidence was apparent that any effort had been made to classify for recitation purposes entering pupils on the basis of their previous attainments in mathematics or English. Pupils should have sent with them from the elementary school as has already been suggested some qualitative statement regarding their strengths or weaknesses in the various fields of school instruction. Many cities use a cumulative record card for each pupil. With such a statement principals and advisers could place in recitation groups in English or in Mathematics pupils of similar ability. While the task of making

a time schedule of classes would be increased because of this differentiation of classes, according to ability and curriculum, the results obtained would more than justify the added study. The school exists to meet the needs of pupils as they come to the school and this means flexibility and differentiation in the administrative machinery. The entering pupils are in special need of study and oversight so that the school mortality may be appreciably reduced.

It is not assumed that any of the matters discussed have not been in the minds of the principals and roster makers, but actual difficulties pointed out by teachers make it desirable to give the topic of assignment of classes some emphasis, and to urge a readjustment at least in one school with a view to adoption by all.

Business and Social Administration

In all, 17 days were spent in the six high schools observing the character of the administration and noting the quality of instruction in chance, but typical recitations, covering the entire program of studies.

The reception accorded by principals and teachers alike was most cordial, and exemplified the spirit of each school as a social whole. Questions were frankly and willingly answered and valuable information regarding the organization and administration of the schools was volunteered. Some of the most helpful means of gaining a knowledge of the purposes of the school and of the ideals of the teachers came through informal conferences in corridors and in classrooms, after the schools were dismissed.

The order in all schools was excellent. There was a noticeable absence of repression and no teacher monitors were in evidence. Pupils passed quietly and naturally to and from recitations, the gymnasium and the lunch rooms. During the luncheon recess, on their respective floors, pupils moved about in quiet groups and engaged in orderly conversation. The

machinery of government was inconspicuous, and an admirable morale was observed in all schools. Each principal conducts his own school according to his own methods and ideals. At the Yeatman School the upper class pupils are quasi-officially charged with the general decorum of the school and with the setting of its standards of conduct. They assume this responsibility with pride and with effectiveness.

In the Yeatman School only, is a daily assembly held in the school auditorium. In the other schools the classes come together about once a week or once in ten days. The mere fact of an entire school meeting as a whole once a day does much to create a spirit of solidarity. The daily assembly emphasizes the fact that a school is not a mere collection of classroom units but that it has a social unity. Furthermore, the assembly affords an unparalleled opportunity for the principal to impress his personality upon the entire life of the institution. With the splendid auditorium possessed by each school this opportunity of the principal should not be lost. It was learned that the commendable practice was followed of inviting in successful men in different walks of life to address the pupils. Much may be done through this channel in the field of vocational guidance.

Each high school has the usual social or extra-scholastic activities, participation in which is considered a privilege which may be taken away by the principal for good cause. Among the organizations are the following, not all, however, being found in any one school: boys and girls' athletic associations, band, botany, camera, French, scientific, chess, classical, cycle, engineering, German, mandolin clubs, boys literary and debating society, school orchestra, college club and a dramatic club. Each school prepares a school annual, and at the McKinley School a paper is printed by the pupils. At the McKinley School the auditorium is too small to accommodate all the pupils at one time so that on alternate weeks the pupils of different sections of the entering class meet as literary clubs, during the weekly auditorium period. The unique feature of

these junior clubs is that each is composed of the pupils from some one of the contributing elementary schools, and during the first year of the high school course these pupils see each other in groups such as those to which they have been accustomed in the elementary schools. The effect, so the principal states, has been to assist entering pupils in getting adjusted to the high school easily and quickly. They soon begin to feel at home. By the end of the year the entering pupils are thoroughly amalgamated.

Lunch Rooms. Each high school has lunch room service, conducted in a most admirable manner. The food served is of excellent quality, the prices are reasonable, and the service prompt and courteous. There is nothing in the order or administration of this modern phase of high school organization that could be criticised. The health and best interests of the children are the sole consideration. The lunch rooms are not run to make money, but are run to be self-supporting. They come under the direct supervision of the supply commissioner of the Board of Education, with each lunch room in charge of a professionally trained and experienced woman director. Evidence of the care taken to secure the best dairy products obtainable is seen in the fact that a contract exists with a dairy for the entire dairy products of a herd which is kept separate from other cows when grazing as well as when in the barns, and the dairy company controlling this herd is required to have two veterinary examinations of each cow made annually in order that the Board may know the cows are in a healthy condition. For the year ending June 30, 1915, the receipts of the school lunches in five high schools were $68,310.38 with expenditures amounting to $64,950.21, leaving a balance of $3,360.17.

The business side of lunch room administration would furnish a real situation worthy of study by the pupils of the classes in advanced bookkeeping and business practice without interference with the actual administration of the lunch rooms. Pupils, through a study of the methods used in ordering sup-

plies, checking up invoices, auditing accounts, etc., etc., would come into some contact with actual business, and this opportunity, although somewhat limited, should be fully utilized in each school. The directors of each lunch room would welcome such co-ordination of theoretical classroom instruction with real business situations as is here recommended.

Further, it is recommended that some sort of correlation be made with the domestic science or cooking classes of each high school, in the preparation on a commercial scale of the lunches for pupils. For example, salads are frequently served in the school lunch, and large quantities are necessarily prepared. There is no good reason why, by previous conference, the cooking class may not be studying salads on the day when they are to be served in the lunch room. While the two problems are somewhat different, still there is enough in common for help to be given to the class in cooking and no interference follow in the lunch room kitchen. Without exception the directors of the lunch rooms expressed a willingness to work out some plan of correlation. Interest in the problem will suggest points of contact.

School life at best is artificial, and teachers frequently attempt to create real situations; why not utilize what the school itself offers of reality and study that?

School Libraries. In each school was a library under the special supervision of a teacher assigned by the principal. The rooms were admirably lighted, conveniently located, and fairly well stocked with books, especially for work in English and History. During the day different teachers are assigned to library duty, so that at least seven teachers a day are administering this important department of a modern high school. It could hardly be expected that each of these persons would be an expert in library administration, and the expense of this arrangement, practically meaning the time of one and two-fifths teachers, at an average salary of $1500 per teacher, or a total of $1900 for each school, is an item of considerable magnitude. It might be shown that not more than

one period of the five devoted by a teacher to recitation purposes is given over to special supervision of the library so that the actual cost would not be more than one-fifth of one person's salary, or approximately $300, while the time of other teachers spent in the library is that which would otherwise be spent in supervision elsewhere. But the important consideration is regarding the educational value which may come from expert library service and the value that would come to pupils in their school work if the regular teachers devoted their time to the supervision of study periods and not in taking charge of the library during a given period. A further question is the money value of a teacher's time in comparison with that of a librarian. Without criticising the efforts now made by the teachers in charge, it is fair to say that library administration has become a highly technical occupation, requiring an extensive and specialized training, and that to put trained librarians in charge of the school libraries would add immensely to the effectiveness of this department. In conjunction with the public library of the city it would seem likely that a plan of co-operation could be worked out.

There was an absence, in most school libraries, of books of reference in the sciences, practical arts, mathematics, and also of departmental and of general magazines. It would appear that the library is considered as an adjunct to the English and history departments and not as having its existence as a general laboratory of research and study and related to all departments of instruction.

Usually the library is closed shortly after the close of school in the afternoon, which means that many pupils are deprived of its advantages. With one person in charge throughout the day such a situation would be obviated.

The administrative offices seemed to be adequate in each school and business with teachers and pupils was transacted promptly and courteously. In all the schools the school records were admirably kept, so that data of all sorts were immediately available and in excellent condition. It would be difficult to

find the administrative machinery of any high school system that would surpass that of St. Louis from the superintendent's office to the classroom teacher.

Supervision of Instruction. The immediate supervision of instruction officially and theoretically devolves upon each high school principal who while the administrative and executive head of the school is also considered as the head of each department of instruction. The principal of a school enrolling over 1200 pupils hardly has time to devote to systematic and continuous supervision in any one field of high school activity. The demands upon his time in legitimate executive work prevent this, in large measure. It would be helpful if a quarterly report were made by each principal showing the number of his visits to the different classes, for the supervision of instruction. Moreover it is no disparagement of the principal to say that the chances are all against his having the scholarship in all departments of high school work which may be the possession of individual teachers, each in his own field. He may reasonably be expected, however, to have a very definite idea why each subject is in the program of studies and to have a definite knowledge of what a given subject is expected to contribute to the personal and social progress of the pupil taking it. He will also be familiar with the principles of general method but not necessarily versed in the special pedagogy of each high school subject. This latter knowledge should be possessed by individual teachers and by the heads of departments, where such are appointed.

The St. Louis schools, however, do not officially recognize departmental heads, although each principal would favor such an organization. In most of the large cities of the country there are in the high schools persons who, under the principal, act as heads of departments, and who are held responsible in a measure for the quality of instruction in any given division of the school program of studies, such as English, Foreign Languages, Mathematics, Science, Practical Arts, etc., etc. These heads of departments, with periods for classroom visi-

tation, assist in the supervision of individual teachers, hold conferences to discuss the problems that arise within their respective fields, study new texts and formulate desirable modifications in subject matter for the various classes pursuing the same subject, in order to better adapt the material and method to the needs of a particular recitation group; *e. g.*, Spanish for commercial use and Spanish for literary and cultural aims—or in Mathematics, Algebra for the shop work in those groups which emphasize the industrial arts, and the Algebra for those pupils who are preparing for the technical schools,—or again, in Science, the Physics of those classes preparing for college, and the qualitative Physics for those pupils who may be seeking a fuller understanding of their material environment.

Just as within a school the work of a school is co-ordinated through the principal, so the work of any given field of instruction would be standardized and unified throughout the city by conferences between principals, department heads, special supervisors and the assistant superintendent, in charge of high schools. Thus there would be realized a substantial unity together with a desirable diversity throughout the entire high school system.

Further vitality and interest in the teaching of various subjects would be helped through voluntary associations of teachers in any given field, as for example, the modern languages, mathematics, English, etc., etc. Questions of method should occupy considerable attention, and the results of experiments and special studies freely discussed. Groups of this sort could well center around similar work done in the extension classes of the Teachers College and of the Sumner High School. Doubtless the organization of such associations is expected and has been advocated by the superintendent and his assistant.

In some measure this end is being realized through the special committees appointed to assist in the general revision of the course of study for the city.

With a group composed of the heads of departments as a cabinet, presided over by the principal, policies may be inaugurated which will reflect more completely the consensus of opinion of the entire teaching body than the mere edict of the principal. With a formal departmental organization an added dignity would be given to the newer subjects of the school program of studies and a strong spirit of co-operation fostered.

Although there is no formal recognition by rule of the Board of Education of departmental heads, still an approach to this type of organization is realized in each school, and this feature has been especially prominent as stated above during the past three years while a revision of the content of each subject of instruction has been in progress.

The principal appoints from time to time a teacher, usually a head assistant, to act as chairman of a group who may be teaching the same subject but such teacher has no responsibility in supervising or initiating classroom activity. The meetings are infrequent and tend rather toward emphasizing uniformity in the results of instruction than in initiating better methods of teaching.

The supervisory phase of high school instruction is too much neglected in most high schools throughout the country on the fallacious theory that if a teacher knows the subject matter he is teaching, his methods will be his own and therefore most effective. One might as truly say this of each surgeon having his own method of surgery, or of each lawyer having his own method of law procedure. There are general methods of law practice as well as general methods of teaching, but in actual practice there must be an application of these methods to concrete situations under competent direction to realize thoroughly efficient results. Such direction may best be had through departmental heads, and it is strongly recommended that this type of organization be adopted.

Relation of High Schools to Contributing Elementary Schools

Each term approximately 70 per cent of the pupils completing the elementary schools enter the high schools. As an aid in the closer articulation of these two parts of the school system for some years past the commendable practice has been followed of holding at the respective high schools a conference of parents and prospective pupils. At these conferences the aim of the high school has been presented by the principal and an explanation given of the various courses of study or curricula, and at the same time parents have been invited to inspect the building and meet the different teachers. Again, circular letters from the superintendent's office have been sent to the homes of pupils of the highest elementary grade setting forth the advantages of high school education. There is no doubt but that the letters and the conferences have been of much aid in making the work of the high school better understood, throughout the city.

A still closer relationship would be effected if the principal of each high school were to visit at least twice a year each of the elementary schools in his high school district, and there in conference with the elementary school principal and the teachers of the eighth grade learn first hand concerning the prospective entrants, in order that when they enter the high school they may find themselves more readily in their work.

Through such a conference many pupils, who would otherwise be kept out of high school because usually the elementary school principal is slow to recommend to a high school a pupil who will not, in all probability, reflect upon his elementary school, would have an opportunity to do some work in the high school, in some one of its various forms of activity. He would thus get from the high school more than he could get by repeating a grade. To find places for such pupils, a personal conference and mutual understanding are necessary. For

pupils who are not recommended by the elementary school principal an opportunity is given through special examinations set by the superintendent, to enter the high school. From 20 to 30 pupils take these examinations each year and enter. The danger here is that the results of a mere performance may be taken as the sole measure of a pupil's ability to profit by attendance upon the next year of work in the high school.

There appeared to be no evidence on file, in any of the high schools, of judgments regarding the individual characteristics of pupils coming from the elementary schools. Statements concerning chief school interest, principal outside interest, health, personal qualities, such as promptness, orderliness, neatness, courtesy, subjects in which pupils show special aptitudes, subjects in which they have had especial difficulty and a statement of a pupil's relative position in his class, etc.,—all this information should be at the command of the principal and of the pupil's adviser, in order that the boys' and girls' chances for quick adjustment to the high school may be enhanced, and that a pupil may be checked in making an unwise choice of curriculum. Further discussion of this appears above.

In recent years some significant studies have been made, in at least two large cities, of a pupil's relative position in his highest elementary grade, *i. e.*, whether he ranks in the highest, the middle or the lowest third of his class, and his position in the first high school year, in such subjects as mathematics, English and history. From these studies, the relative efficiency of the instruction in the contributing elementary schools has been at least tentatively determined, and again much light has been thrown upon the problem of individual differences among pupils. This information is of help in placing pupils in proper fields of work.

It is urged that studies such as that referred to be extended in St. Louis. The present practice which looks in the direction of the study suggested above, of sending to the elementary

school regular reports on the first half year's work made by the pupils of the high school, is to be highly recommended. These reports indicate the number of pupils taking the various subjects, the number failing, the average per cent made, and for comparison the entire number taking the various subjects, the number failing and the average per cent made.

CLASSROOM INSTRUCTION

It was impossible to visit every teacher or to spend much time in any one classroom. Some classes were simply glanced at, although with most of the teachers visited, from 10 to 40 minutes were spent in observation. Many conferences were had at which much was learned of a teacher's aim in teaching his subject and of his opinion concerning the effectiveness of the various curricula. The particular recitations visited were a chance selection although all departments were observed. On some days, owing to various causes, the order of recitations was not as usual, and because of the nearness to the end of the school year many classes were reviewing, and further in some instances the work of the year had been done and books were being collected and accounts settled. Frequently a class would be encountered where only a few who had not been exempt from the final examination would be in attendance. Again several partial holidays interfered with the normal running of the schools. Notwithstanding these conditions enough of the actual work of the school was seen to justify the opinion that the actual teaching throughout the entire city was of a uniform excellent quality. Teachers of academic training and of experience are chosen for all the high schools and the work of the classrooms indicates plainly the wisdom of the particular selections. The great majority of the teachers were anxious to improve their scholarship in the subjects taught and to try out improved methods of instruction. There was a feeling of limitation in the courses now offered, and a desire to have the revision which has been in progress for several

years put into early operation. In the discussion that follows no attempt is made to fully characterize the work seen, but simply to indicate some matters which stood out rather prominently.

English

Nearly every class visited was studying literature, and it was apparent, after inquiry, that but little attention was being given to composition, either oral or written. In the interpretation of the literature read, the pupils were active and did most of the work. The comments made by the teachers were illuminating and not too voluminous. In the few composition classes visited, the use of the blackboard is to be highly commended. With eighteen to twenty paragraphs put upon the board for discussion, all pupils get the benefit of the cooperative study of the work of each. In this connection much time would be saved if the projection lantern with reflectoscope attachment, were used to throw compositions upon the screen for the benefit of the criticism of the entire class. Further periods for consultation with individual pupils should be provided. It is recommended that oral composition be given a more definite place in the English unit of instruction. The recitation rooms were well supplied, in most instances, with reference books, charts, maps and pictures.

Foreign Languages

Classes in Latin, Greek, French, Spanish and German were visited. The general quality of work in Latin and Greek was excellent. In the other classes some differences in results were noted in those classes more heterogeneous in their composition; that is, made up of pupils of various school years. In some classes first and third year pupils were combined but in general the work was of excellent grade. In the modern languages a modification of the direct method was characteristic and much oral composition prevailed. The small number of pupils in the upper terms of the language classes was very

noticeable; *e. g.*, at the McKinley school 5 pupils were studying eighth term Virgil, and it happens that no one of them was taking the classical course. One of the eighth term Spanish classes at the Cleveland school had but 7 pupils, while two sections of a first term class enrolled 29 and 30 respectively. At the Yeatman School an eighth term class of 5 pupils began Spanish four years previously with 39 pupils in the division.

In many of the German classrooms there was an excellent array of pictures, charts, maps and of objects all of which tended to make the instruction real and concrete.

It appeared that the Spanish of the Yeatman School was given a special commercial emphasis, as was revealed in a conversation with the instructor and as was evident from an examination paper which was to be given. As an aid in showing the practicability of Latin attention should be called to a Latin exhibit which was hung upon the walls of one of the corridors in the Cleveland School. This served to create interest in this language.

Many of the teachers of foreign language felt that the requirement of two years of a language for all pupils meant a general lowering of the quality of instruction and for many pupils a waste of time. This is undoubtedly true. Moreover many pupils who have been weak in language in the elementary school ought never to be permitted to begin a foreign language, as the chances are all against their success. The following table for the Soldan School from September, 1915, to January, 1916, is significant in this connection:

TABLE SHOWING LANGUAGE FAILURES BY TERMS

Language	Term	Per Cent Failures	Term	Per Cent Failures	Term	Per Cent Failures	Term	Per Cent Failures
Latin	1	23	2	26	7	0	8	0
German ..	1	16	2	14	7	3	8	0
French ...	1	25	2	35	7	0	8	0
Spanish ..	1	19	2	13	7	0	8	0

To show the relation of language failures in the first terms of the Soldan School the following table is of interest:

TABLE SHOWING COMPARATIVE FAILURES

Subject	Term	Per Cent Failures	Term	Per Cent Failures
English	1	15	2	13
Algebra	1	19	2	18
Language	1	20	2	22.5
Science	1	23	2	19

Tables from other schools would undoubtedly show similar results.

MATHEMATICS

The mathematics classes visited were in Commercial Arithmetic, Algebra, Plane and Solid Geometry and Plane Trigonometry. The instruction was generally very good. The topics discussed were those usually found in standard texts and the text book was closely followed. No class showed any tendency toward the newer treatment of mathematics in the first year of the High School course, and the teaching of Geometry showed no marked influence of the recent report of the Committee of Fifteen of the American Mathematical Association, wherein the usual number of propositions is reduced and many real problems suggested. In but few classes did the instructors incline toward making any application of the mathematical truths worked out, to practical problems. There was a feeling among most of the teachers that more recent editions of mathematical texts should be available. The so-called disciplinary values of mathematics were much stressed when questions were asked as to what the instruction was to contribute to the pupils' welfare. Some teachers felt that not all pupils should be required to take both Algebra and

Plane Geometry as a condition of graduation. To this opinion there is coming to be general acceptance, and curricula are being arranged in such a manner that this omission is recognized. The work in Commercial Arithmetic was of the conventional type, and from this new point was well taught. Many teachers of mathematics favor differentiated courses in mathematics with special reference to the curriculum in which the subject appears; *e. g.*, a course in shop mathematics for those pursuing manual training courses, and a course in practical arithmetic, algebra and constructive geometry as a part of a Domestic Arts curriculum.

History

Two courses in history, ancient medieval and modern history, are offered in all schools in the third and fourth years respectively. Classes in each were visited. In one school the teacher fell into a common error in teaching history, that of talking too much. In another recitation the pupils did the work with only an occasional hint from the teacher. This exercise was a truly social enterprise. The attitude of the class was that of solving a problem and the quality of the work was excellent. All modern history classes were at a disadvantage, however, in having to supplement the texts in use by the dictation of material by the teacher, or the teacher had to prepare mimeographed sheets containing recent historical data. The classrooms were well supplied with maps and charts, and the school library contained much reference material. The history teachers frequently accompany their classes to the library and assist in the finding of material referred to in the classroom. It was found that the projection lantern was frequently used.

The history work of the entire High School system should be reorganized and broadened to include community civics and a study of vocations, United States History and Economics. As is now the case, nearly 60 per cent of those enter-

ing the high school have left before they can get any history in the St. Louis high schools. The point of view of the ancient history and of the later European history should be shifted from the study of the historical facts for their own sake, to a study which shall marshal material so as to bear upon the solution of present day civic and economic problems. In a public school, whose purpose is to assist in the training of young people for effective citizenship, the social studies should have immediate and practical bearing upon the problems of the present, whether these problems be civic, social or economic. The lack of just this emphasis is to be found in the St. Louis high schools.

Natural Sciences

Classes in Physics, Chemistry, Botany, Physiology and Physical Geography were visited in each of the five white high schools, and the teaching seen was of uniformly high quality. The laboratories were in every instance elaborately equipped, and as has been pointed out, contain a large variety of equipment. Some of the recitations were inductive in character, but in most of the classes reviews were in progress. In the laboratory exercises observed in Physics, pupils in some instances had but slight comprehension of just what they were doing or why. The course in Physics as in Chemistry is based upon a uniform series of experiments supplemented by a study of texts. Both Physics and Chemistry are offered for three terms, two terms of Physics being required of all pupils for graduation. The third term in Physics may be taken instead of Mathematics in certain courses. Some teachers say that many pupils take advanced Physics, not because of any interest in or aptitude for Physics, but to escape more mathematics. In the Soldan school the third term, September, 1915, to January, 1916, showed 22% of failure, as compared with 16% and 17% failure in first and second term physics of the same period.

The content of the Science work of each school is the same for all schools. The physics of the classical course is the same as the physics of the Manual Training course, and the same would be true of each science course. There is no differentiation, and apparently little spirit of curiosity or interest in natural phenomena evident among the pupils, which can be traced to the science instruction. There are excellent note-books, and excellent recitations from the texts, from the viewpoint of formal teaching, but the work lacks a vital touch with real problems which are worth solving. This is not because the teachers are individually lacking, but because of a feeling that they must conform to uniform treatment. In botany and physiology, much emphasis is placed upon structure, in physics and chemistry it is largely upon laboratory manipulation and the note-book records. The physical geography of the last year is taught from a book generally used in the first high school year, and the work seemed easy, and not of fourth year high school quality. All the physics and chemistry that is needed for entrance to higher institutions can be taught in one school year with two double laboratory periods and three recitation periods a week. Such physics as is taught should not be required of all pupils, much less of pupils in the second school year. Physics courses in high schools as large as those of St. Louis should be differentiated in accordance with the different types of curricula and the majority of such courses should be less mathematical in nature. Chemistry courses should also be differentiated at least in the kind of experiments performed. The chemistry of the Domestic Art and Science course should stress those principles which have direct application to the problems of the home. The physiology content should emphasize problems of personal and community hygiene. A recommended sequence of science work is as follows:

First year.—General or Elementary Science, in which the aim is to interpret the physical environment of the pupil and

furnish a purview of the fields, to be subsequently studied as specialized science. Such a course will involve but little laboratory work by the pupil, but much observation and inquiry.

Second year.—The general principles of biology with applications to plant life or botany, animal life or Zoölogy and to human life as physiology. At least one double laboratory period a week should be provided for this subject.

Third year.—Physics in differentiated courses to apply to College preparatory, technical school, manual training and household art courses. This differentiation should be rather from the viewpoint of those who are going on to higher institutions, while the most practical and general type of physics should be for those whose academic training ends with the high school.

Fourth year.—Chemistry with modifications of a basal practical course for those who go on to College or technical schools.

Physical geography could be given in the first year as an alternative with general or elementary science in some curricula. Elementary geology and astronomy, which were formerly found in high schools, are still worthy of a place in the program of studies of the cosmopolitan high school, preferably in the fourth year.

Business or Commercial Subjects

The teaching of the business subjects was of a uniformly high quality. No especially weak spots stand out, although it was evident from conversations with many of the teachers that a larger degree of specialization, whereby each teacher does what he is best prepared to do, would add to the effectiveness of the teaching. The teachers in each school follow very detailed outlines of work in bookkeeping, stenography and typewriting. The classes in many cases contain pupils who are taking the two-year courses, and in a very few cases the one-year courses, as well as those pursuing a four-year course. The result in classes like stenography and bookkeep-

ing is that the quality of work is uneven. It should be said, however, that in program making every effort is made to keep pupils of the various degrees of advancement together.

The pupils taking the two-year course on a nine-period day have too much to do, and only the strongest can stand the strain of 35 periods of work weekly.

The commercial departments in all schools lacked many of the office devices, such as adding machines, addressographs, varieties of filing devices, mimeographs, bookkeeping typewriting machines, etc., such as they are likely to meet with after graduation.

The commercial department is the most distinctly vocational work of the St. Louis High Schools, and should be on a vocational basis at least as far as the commercial arts of typing, stenography and bookkeeping are concerned. The more real problems the pupils taking business subjects can undertake, the better their training for after-school life. The school in its life furnishes many such problems. The lunch room administration could be utilized, and in some way correlated with the advanced classes in bookkeeping. The bookkeeping class could undertake with supervision the administration of the school supplies. The question of the standardization of supplies, the normal amount that should be used, the per capita cost, the organization and handling of a model stockroom with its stock records, etc., all these should be utilized in making practical the text-book instruction, and in teaching pupils economy, and how to take advantage of the real business and life situations that the school itself affords. In some of the St. Louis schools the admirable practice of having advanced pupils in stenography take dictation in the principal's office is followed and with excellent results. Much of the time of teachers in other departments would be saved and pupils of typewriting greatly helped if notes, outlines, and abstracts that have to be prepared for other classes, could be done by the Commercial Department. In order to utilize these opportunities, of course freedom in instruction, and

departure from the daily and weekly prescribed outlines, must be permitted and encouraged.

At the Central School especially there has been worked out an excellent "follow up" or placement bureau, by which the school authorities, including the superintendent's office, assist pupils in securing positions. Detailed studies have been kept covering a number of years, of the beginning salaries of pupils who have gone out from the two-year and four-year courses, showing the distinct superiority of the longer training. Similar records should be kept for all schools. If this record could be supplemented by data regarding increases in salary and changes in positions held, one measure of the effectiveness of the business department would be had. Admirable reports of the work in this department have been made at the close of each term to the superintendent's office.

The plan for the placement of pupils graduating, or completing the different commercial courses, as well as other courses should be broadened and assigned to one person for the entire city. Such a person would become the Vocational Councilor for a large number of pupils. He should be attached to the superintendent's office. Some work of this character is now done.

The penmanship of the entire high school enrollment was unusually good. This was not only true in the commercial classes but throughout all classes.

Very few pupils were following the one-year business course and the opinion of all teachers was that it should be discontinued.

Music

Music classes were visited in two schools, the McKinley and the Cleveland. The work observed was in chorus singing and on the days visited the exercise was one in preparation for a Sunday afternoon concert at Forest Park. The work began with but little interest in one of the classes, and it was found that many pupils were excused from music instruc-

tion. No credit toward graduation is given. This is a mistake. If the subject is worth taking the time of pupils, it is worth being done in such a way as to be worthy of credit. In other classes excellent lessons in musical appreciation and in the interpretation of standard operas were in progress, and pupils were attentive, and upon inquiry several expressed genuine pleasure in the work.

It is recommended that in addition to the occasional practice of the school for the music of the auditorium exercises, that definite units of work, sequential in character, be offered in music and that full credit be given to those successfully completing the work. Music plays take too prominent a part in the social life of the American people to be omitted from the program of studies in their public high schools.

Practical Arts

Manual Training, Domestic Art and Science, Drawing, freehand and mechanical. The various shops and rooms for the different courses in practical arts could hardly be surpassed. They should be in constant use both for day and evening classes that the full value of the investment may be realized. It happened that the only shops seen in actual operation were the joinery room and the forge room. The work done was of excellent quality. Upon inquiry it was learned that the viewpoint of this work was that it formed a part of a pupil's general training, and that it is not primarily vocational. Pupils are being acquainted with the fundamental processes which underlie various mechanical, industrial and home-making occupations. As far as possible in the manual training rooms, real shop conditions and standards are maintained, but pupils are trained with a view to understanding the processes rather than centering all attention upon the finished product. The processes of reflection required are what furnish educational worth to practical arts instruction. They also have vocational significance.

Practically only those pupils taking the manual training course get access to the school shops, whereas work of this character is so fundamental that some phases of it ought to be accessible to all pupils in the High School.

It appears that wood turning is receiving too much emphasis in proportion to its true value. It would be better if the fifteen weeks given to this phase of manual training were given to pattern making rather than the reverse, which is now the practice.

The mechanical drawing is only incidentally related to the work of the shops, but the courses are being very well taught. A few classes in sewing and in cooking were visited. Pupils were busy and the products which were displayed showed the excellent quality of the teaching. It seems that too little emphasis was placed in sewing upon the use of the commercial patterns, in fact, in some schools they were not used at all. The principles of dress drafting could be a part of the course of instruction but pupils should be early taught how to use commercial patterns, since the great majority of women will in actual life situations use such patterns.

It would be better for the great majority of pupils if the courses in sewing and cooking could be given in alternate years or the same year, rather than as at present, the first two years given to sewing and the last two to cooking. Again, pupils other than those taking the Domestic Art and Science course should have opportunity and encouragement to take up sewing or cooking in addition to their academic studies, all work being an integral part of the curriculum pursued.

While it is true that for some years pupils of all courses were given an opportunity to take work in manual training, domestic art and science and commercial branches, they took it in extra session hours at an extra expense to the city. By this plan it was evidently assumed that the only academic or book subjects and laboratory work in science meant education, and that by doing extra and outside work a pupil might have an opportunity to learn something immediately useful.

This made practical arts secondary and incidental, rather than co-ordinate with other subjects in a well ordered plan of training.

In the few classes in Art that were visited the theory seemed to be "Art for Art's sake," and that real life problems and situations had only a minor interest. The technique was excellent, but from conversations with teachers the viewpoint of the instructors was not eminently practical in the sense of bearing upon use and utility. Applied design appeared to have little attention. The course for the city allows about five weeks for individual problems, according to the ideas of the different teachers, otherwise all classes were following a uniform course. The work of the city in all practical arts subjects is unified through an efficient supervisor.

The pupils of all courses should have an opportunity to take at least two years of drawing.

The Present Courses of Study or Curricula

Each school offers seven uniform four-year courses of study, the courses and the distribution by enrollment being as follows:

January, 1916—June, 1916

Courses	Central	Cleveland	McKinley	Soldan	Yeatman	Sumner	Total	% of Total Enrollment
Art	60	42	55	84	40	8	289	3.2
Classical	23	19	12	26	7	0	87	1.02
Commercial	308	254	216	226	250	62	1316	15.4
Domestic Science	148	200	236	293	188	245	1310	15.3
General	382	190	342	813	396	241	2364	27.8
Man. Training	169	211	276	267	197	185	1305	15.3
Scientific	219	94	116	242	60	0	731	8.5
	1585	1217	1452	2089	1381	796	8520	86.5

86.5% of the total high school enrollment is found in the four-year courses, leaving 13.5% in the two-year and one-year vocational courses. It will be noted that the percentage in three courses, the Commercial, the Domestic Science and the Manual Training, is practically the same, while the Scientific is about one-half the three named and the general course has almost twice the enrollment of the majority of courses.

GRADUATES, JUNE, 1916

Courses	Central	Cleveland	McKinley	Soldan	Yeatman	Sumner	Total	% of Total Graduates
Art	11	8	3	7	3	0	32	6.5
Classical	2	2	0	1	0	0	5	1.01
Commercial	19	4	7	12	14	2	58	11.7
Domestic Science	7	4	13	19	6	4	53	10.7
General	33	7	14	66	13	16	149	30.2
Man. Training	8	4	15	14	8	5	54	10.7
Scientific	10	5	4	7	1	0	27	5.4
							378	76.2

76.2% of the graduates in June, 1916, were from four-year courses, while 13.8% were in the shorter courses. The significant fact appearing from a comparison of these two tables is that the distribution at graduation is not widely different from what a cross section of the school by enrollment showed. Once started on a course relatively few who stay four years change. Many drop four-year courses to the shorter courses as shown by the ratio of enrollment and the ratio of the graduates in the long and short courses respectively.

For the classes graduated in June, 1916, the following table, which is a summary of all schools, will indicate the length of time taken to complete each course:

Graduates, June, 1916

Courses	Time in Years							
	3	3½	4	4½	5	5½	6	Total
Art	..	..	22	7	3	..	2	34
Classical	..	2	3	..	..	..	..	5
Commercial	..	..	40	11	4	..	2	57
Dom. Sci.	..	..	42	8	5	..	..	55
General	..	13	110	19	8	1	..	151
Man. Trg.	1	3	38	7	4	..	1	54
Scientific	1	3	24	1	..	..	..	29
Total	2	21	279	53	21	1	5	385

Per cent under 4 years 5.97
Per cent over 4 years 20.87
On time 74.3

A similar table for the January, 1916, graduates is given for comparison:

Graduates, January, 1916

Time taken to complete the course.

Courses	Time in Years								
	3	3½	4	4½	5	5½	6	6½	Total
Art	..	..	31	6	4	1	2	1	45
Classical	..	1	2	..	1	..	..	..	4
Commercial	..	2	30	3	..	..	..	..	35
Dom. Sci.	..	1	23	3	2	..	..	..	29
General	..	10	69	16	4	..	..	..	99
Man. Trg.	..	..	22	10	5	..	..	..	37
Scientic	1	2	17	1	..	..	..	..	21
Total for All Schools	1	16	194	29	16	1	2	1	270

Per cent under 4 years 6.29
Per cent over 4 years 18.14
Per cent on time 75.57

From the above tabulation, it appears that but 74.3% of the graduates in June, and 75.6% in January, were on time, *i. e.*, completed the four years of work in four years of time. No data are available to show what proportion of these pupils removed conditions at a summer session. It is also evident that 20.8% in one class, and 18.14% in another class, took longer than four years to complete a four-year course. Every day longer that pupils stay means more expense to the city, both by the direct cost of instruction and expense because their room would be taken by other pupils for whom additional teachers must now be provided. The repeater always adds to the expense of a school and to the difficulty of program making.

A statistical study of failures would be illuminating here. Approximately 6% gained time, a half a year in most cases.

Defining a unit as a subject occurring daily throughout a school year, the courses represent the following units of work:

Courses	Years				Total
	I	II	III	IV	
General	4	4	5	5	18
Scientific	4	4	5	6	19
Classical	4	5	5	5	19
Art	4	4	5	5	18
Manual Training	5	5	6	6	22
Domestic Art and Science	5	5	6	6	22
Commercial	5	6	6	6	23

In addition to the above the pupils are required to take music and physical training, which adds four periods a week, or the equivalent of 2 units of work. For this no credit is given toward graduation.

With the normal high school course one of 16 units with diplomas granted on 15 units in some parts of the country, it is evident that too much is required of the St. Louis high

school pupils. A pupil can do only so much during a four-year course, and it is better that what is done be well done than that pupil should undertake too much and fail in part of it. The unusual amount of work accounts for a large number of failures, with consequent lengthening of the school life for some, but the elimination from school of others. Moreover an additional expense is represented in the summer session in which the great majority of pupils are making up failures rather than gaining time.

The following table for the first half of the year 1915-1916 for the Soldan School indicates a degree of failure, data from other schools not being immediately available:

Subject	Grade	No.	E%	G%	M%	P%	Failure
English	1—8	1763	8½	42	25	11½	13
History	1—4	529	15	50	20	8	7
Mathematics	1—8	1477	13	37	21	11	18
Languages	1—8	1535	13	30	24	17	16
Science	1—8	1449	8	40	23	10	19
Average	1—8	6753	11	39	23	12	15

From a study of the courses offered and the rules governing their operation, and in the light of successful practices in various parts of the country, and from the testimony of many teachers, it is true to say,

1. That the courses are each too heavy,
2. That the courses lack flexibility in their adaptation to the needs of individual pupils, for pupils have to be fitted to courses rather than have curricula courses arranged to meet their needs,
3. That it is a mistake to teach physics in the second school year and to require it of all pupils,
4. That not every course should require a foreign language,

5. That for the different courses there should be a differentiation in units of work in the same subject, so that each course or curriculum may be a unity instead of a summation of units of work. This means differentiated units in Science, Mathematics, and in language,
6. That the courses are decidely lacking in social science studies.

Attention should again be called to the fact that for several years past numerous committees have been at work under the guidance of a general committee, making a thorough revision of the entire Course of Study for all grades in the city. General principles have been formulated and discussed, and in the light of these principles, various subcommittees dealing with particular subjects have been preparing the content of the different units of work. These have been discussed by the central committee and many reports have been agreed upon. Some of these revisions have been examined and many of the recommendations previously made in this report are in agreement with what has already been worked out. Various courses have been suggested for the high schools, but nothing has yet been presented to the Board of Education for formal adoption. This revision has done much to foster a spirit of growth among the teachers and principals and the consequent study has tended to develop a unity of endeavor and a professional consciousness among the entire teaching and supervisory body. The time has now come for some of the suggestions to be tried out in different classrooms of the city, that the results of experimentation may be had before formal acceptance. A course of study cannot be a fixed thing for any community however well it may seem to be adapted at the time of its adoption, and to wait too long before being put into operation, will necessitate another revision in a relatively short time.

EQUIPMENT

It would be difficult, if not impossible, to find a city in which the high school buildings are better constructed, appointed and cared for than those of St. Louis. Apparently whatever has been found desirable in arrangement or equipment in the newer buildings has been provided, when possible, in the older schools. The result is that throughout the city the high school buildings are admirably, if not in some details, lavishly, equipped.

One cannot but ask the question, however, why it is that with the expensive high school buildings but few rooms except the gymnasiums, auditoriums and some demonstration rooms, are made to accommodate more than 30 pupils each, while the unit classroom of the elementary schools provides for 54 pupils each? As has already been pointed out, some high school classes in subjects in which the recitations are more individualistic than social in their nature, as for example, penmanship, typewriting and bookkeeping, as contrasted with history, foreign language and science, could well be and in some cases are conducted in units of more than 30 pupils each with a less cost and with no decrease in efficiency.

Several instances were observed wherein it appeared that closer co-ordination could have been effected between those who were to use certain classrooms and those who were responsible for their arrangement and equipment.

At the Cleveland High School, opened in 1915, the art room on the top floor of the building has a side and overhead light, and with the difficulty in attaching shades, the use of the projection lantern is made nearly impossible. Again, the narrowness of the room and the arrangement of light makes it difficult to get the light and shade effect so necessary for some phases of work in drawing. Another effect of the overhead lighting as arranged in this building is the excessive heat.

This could, however, be remedied by an arrangement of shades. The cabinets in the art room are well suited to their use.

The arts and crafts room, near the drawing room, has closets which are excellent as pieces of cabinet making but with too many compartments, and most of them too small for the kind of use to which they should be put. The room is equipped with 9 flat top tables for metal work, which is not now carried on, and which it is understood is to be dropped from the program of studies. These tables would be far more serviceable in the physics laboratory than the elaborate tables now found there. The shelves in the stock room are too narrow to take the size of the paper used, and the cabinets are not adapted to the keeping of the special materials used in this department.

In the equipment of the physics laboratories at the Cleveland School the opposite was true. Both laboratories were furnished with elaborate desks and with a large assortment of apparatus when the school opened. For instance, the physics tables, 14 in each of two laboratories, are of maple and stand upon metal supports. Each table is equipped with a gas outlet on the top, with two ink wells and with nickel plated uprights, which screw into a metallic plate, these uprights supporting a nickel plated transverse rod for use in experiments requiring the suspension of balances, pendulums, etc. In addition there is a compressed air outlet, with air at a constant pressure of 60 lbs. at each table and also an electric outlet Under each table is a small narrow compartment with a falling door. This horizontal closet is practically useless as materials roll out. The distance from the brace near the floor and the underside of the table is adapted to but the smallest pupils. In theory it would seem that this type of table would answer every purpose, but the fact is that a very simple table 4′ x 6′ with two drawers on each side, with wooden uprights and a wooden crosspiece would answer any purpose for which a high school pupil in physics would need to put it. The cost would be very much less and undoubtedly many

physics teachers would prefer it. The demonstration table of the teacher might be more completely equipped and such occasional experiments as required compressed air, or electricity from the commercial supply could be performed there. The type of physics tables found in the newer laboratory of the McKinley School is admirably adapted to high school physics instruction.

In the Cleveland School, as well as in the other high schools, there was a most complete supply of apparatus, both for class demonstration and for individual experimentation. In fact there is a far greater supply and variety of apparatus than is likely to be used for some time. The ordering of material has been evidently based upon the practice of having the entire class in physics at work at the same time upon a particular experiment, and this would be naturally so where the physics instruction of all high schools is built up around a common set of experiments, such as were copyrighted in 1909 by the Board of Education. This would mean that each pupil would have the same material, and there would be much unnecessary duplication.

There seems to be no need of so large a supply of each of the following piece of apparatus at the Cleveland School, or at any of the other schools: galvanometers, telegraph instruments, relays, platform balances, ammeters, inclined planes, glass demonstration pumps, to mention but a few items. One-third of that particular equipment for each school would be an ample supply. There were provided also several varieties of pliers for each pupil. The Cleveland School laboratories had 14 tables and 18 sets of apparatus, the 4 extra sets evidently to provide for breakages and replacements. In each of the older schools large amounts of unnecessary pieces were found encumbering the closets and desks, and in one instance some pieces were in their original packages in a laboratory table, evidently never having been taken out.

It should be said that an accurate stock record is kept of the entire laboratory equipment, both at the school and at

the office of the supply commissioner and that the general condition of the apparatus and of the laboratories was excellent. When the time comes to equip another physics laboratory it is likely that the surplus of usable apparatus in the present high schools would be of very material help.

The question of laboratory equipment is bound up very closely with the method of science instruction, and within the past ten or fifteen years there has been a noticeable transfer of emphasis from laboratory manipulation with its elaborate equipment to a more descriptive study of some of the larger problems of nature, and with more qualitative experimentation than quantitative work. This will mean simpler high school laboratories for physics. With the present uniform physics course for the entire city, and with the point of view that all pupils should be at work on the same experiment at the same time, the present situation regarding apparatus can be explained. Many evidences were apparent that the newer point of view in teaching physics will be given prominence in the revised course of study in this subject.

In chemistry, the arrangement and equipment, except for very minor changes is very complete in all schools. There could, however, have been a decrease in the number of gas hoods at the Soldan School and in the number of platform balance cabinets upon the chemistry tables there, and the side tables would have been better placed if they were on the opposite side of the room. In the instruction in chemistry, as in physics, the policy of the city is to have all pupils follow the same experiments and practically at the same time. Inasmuch as the equipment for chemistry is not so expensive as that for physics the duplications of apparatus are not so marked.

The rooms for physical geography in all schools are well supplied with charts, maps, demonstration apparatus, and with conveniences for laboratory work. The Cleveland School demonstration table is particularly elaborate, but apparently little used. In fact, it is hardly as necessary with fourth

year pupils as it would be if physical geography were taught in the earlier years of the high school course.

For the first year classes in botany and physiology each school had a similar equipment of tables with a tile square set in the top, and supplied with ink, gas and electric light outlets. The cabinets were supplied with magnifying glasses, individual dissecting sets, compound microscopes and with slides for the projection apparatus with which each room was supplied. Adjoining the laboratories at the Cleveland and McKinley schools and accessible at the other schools were greenhouses which were used in connection with the instruction in botany. In all the schools each table was supplied with a gooseneck electric light which seemed to be an unnecessary expense, as the occasions for its use are very infrequent. A possible explanation may be found in the fact that with some of the instruction by means of the projectoscope, with microscopic attachment, pupils would have an opportunity, by means of the shaded lights, to make copies in their note books of what appeared upon the screen. Here again, all the pupils in this class would be doing the same thing at the same time, and moreover in each high school the same general plan would be followed. The tendency in botany and in physiology is to do less of the microscopic and structural work and to deal in botany with problems of growth and of economic applications to floriculture and horticulture and in physiology with questions of personal and community hygiene. In fact, it was found that the lights were seldom used and in constant danger of being broken by chairs being tipped back. The expense involved is not great but it represents an unnecesary expenditure which would have been avoided if all schools were not supplied with what, at some time, in one school had been an incidental equipment, and of only occasional use.

The commercial rooms in each school are of the same size as the other classrooms, and usually equipped for 30 pupils, although for penmanship, typewriting and bookkeeping, larger

classes could be effectively taught. Each bookkeeping room has a portion set off with glass partitions, to imitate the arrangements found in banks and in some private business schools. These compartments are unnecessary and are not generally used, and their installation represents a useless expenditure. Removing these compartments would permit larger classes in the subjects suggested above.

At the Cleveland and Soldan Schools particularly there were excellent desks designed for use both in bookkeeping and in typewriting, since the typewriters were fastened to a folding top. As furniture, the desks were attractive but they represent an expensive situation, for when the desks are used for bookkeeping they cannot be used for typewriting and hence during the bookkeeping period 30 typewriters, representing at least a value of $2000, are temporarily out of use. Simpler tables, such as are at the Yeatman School would answer for the typewriting and more of them could be put into a room than can be the case with the combination desks. Furthermore, releasing the typewriters would permit of their wider use. Cheaper flat topped tables would answer for the bookkeeping classes. Whatever could have been saved by a simpler equipment could well go to supply apparatus badly needed in the business department of each school, viz., various types of adding machines, duplicators, additional filing devices, addressograph, bookkeeping, typewriting machines, parcel post scales, etc., etc., all of which pupils are likely to meet with when they go out into business.

The practical arts department, including the various shops used for the different phases of manual training and mechanical drawing and for domestic art and science, are most completely equipped. Each new school shows an improvement over the earlier schools, but all are excellent. In the equipping of these rooms there seems to have been complete cooperation between the teachers of shop work and those responsible for planning the school. In two instances at least commendable economy has been effected.

In the joinery shop, instead of each of 30 benches being equipped with six complete sets of tools, since each bench has six drawers for as many different boys, there is, for example, but one plane frame to a bench and a cutter for each pupil instead of six complete planes. The net saving in equipment for each bench is at least $30 or $900 for the entire shop in this one item alone. Other economies are effected with the more unusual tools.

In the joinery shops a very careful record of all stock and equipment is kept, and in general the standards of a well administered commercial enterprise are observed.

The mechanical drawing tables in the Cleveland School are excellent pieces of workmanship. Besides the tilting top each desk has in the rear three cupboards with brass hinges and brass catches. Each desk also has six drawers, one for each pupil who may use the table during the day. The rear closets were designed to hold the T squares, but the T squares in use in the schools were larger than the desk could hold so that the cupboards are useless. Moreover, but one T square is used to a desk and is by preference kept under the drawing board. The desks, therefore, are unnecessarily expensive. It should be said that in this school as in some of the others a saving has been effected by making one set of drawing instruments serve for each desk, instead of supplying each pupil with a complete set. Blue print machines are provided for each school.

In the domestic art or sewing room at the Cleveland School there are quartered oak cabinets which are arranged with compartments instead of with shelves which would better serve the purpose intended.

Adjoining the domestic art rooms are those for cooking and for the laundry. Both rooms are superlatively well equipped and suggest standards for the kitchens of the future home makers.

The gymnasium in the Cleveland School is all that could be desired and in the other high schools, while not compar-

able with the Cleveland School, the gymnasiums with their equipment give evidence that physical training is an important phase of secondary education.

The general impression of the construction, the equipment and of the appointments of the St. Louis high schools is most pleasing. Each new building shows an advance over preceding structures. Such buildings add to the material and architectural assets of a city. Primarily they are for the use of the young people of the city and the youth of St. Louis are exceedingly fortunate in their oportunities for a broad and liberal education in such splendid school buildings.

SUMMARY

A summary of recommendations some of which have already been made in different parts of this report, is as follows:

I. Administration.

1. That the assistant superintendent in charge of high schools should have time to devote his entire attention to Secondary education.

2. That a system of departments with departmental heads be organized within each school. This may involve a modification in the salary schedule and of the present system of ranking teachers.

3. That in the equipment of laboratories and buildings a closer correlation be effected between the teachers who are to use the apparatus and equipment and those responsible for furnishing the same. This would apply particularly to new buildings.

4. That a system of Intermediate or Junior High Schools be established in the city. Such schools would enroll pupils of grades 7 to 9 inclusive. The adoption of this might mean the use of the present high schools as Junior Schools with a Central High School as a Senior High School, or this policy might lead to the erection of some Junior High Schools

in strategic parts of the city with the Senior High School in the same building; or a Senior High School together with two years of College work.

5. Related to the idea of the Senior High School is the Junior College or a two years course in advance of the Senior High School, making the public school course one of fourteen years, or practically through the period of adolescence. Many larger cities have already established Junior Colleges and thus opened up to greater numbers of young people collegiate training from which they may go directly to the professional schools.

6. That a high school of observation and practice be established in connection with the Harris Teachers College. This school could well be the beginnings of the Junior High School plan. Such a school would be a laboratory for experimentation in problems of secondary education, and at the same time provide High School facilities for a part of the city not now easily accommodated.

7. That a city system of certification of teachers be established, whereby High School teachers shall be permitted to teach only those subjects in which they shall be certificated. Such a certificate should require in addition to the academic subjects to be taught some knowledge of psychology with special reference to teaching, the principles of secondary education, the special methods of the subject or subjects to be taught, and a knowledge of the history of secondary education. The professional qualifications could be established either by examination or by the acceptance of credentials from approved colleges or summer schools.

8. That a study be made of the relative standings of pupils in the first High School year in comparison with their standings while in the last year of the Elementary School. Pupils may thus be placed in homogeneous groups in first year classes. Also closer articulation will be effected between Elementary and high school so that more over age pupils may have the advantage of the high school shops, and laboratories.

9. An earlier assignment of pupil advisors who may assist in guiding pupils' choice of curricula is desirable.

10. That in the making of the daily time schedule at the beginning of each term, pupils of the earlier years be continued under the same teacher for two consecutive terms in any given subject of instruction.

11. That the Saturday Voluntary classes and late afternoon classes be re-established and that pupils may receive additional credit for all advanced work done, and thus shorten the period of school attendance.

12. That the summer school be continued, but with special stress upon the gaining of credit in order to shorten the time of the regular courses. In connection with the making up of work failed in during the year, it is recommended that a careful study be made of the relation between the amount of work carried by pupils and the number of failures. To emphasize the making up of work in which failure has occurred is to attack the symptoms and not the cause.

13. That each school library be placed in charge of a trained librarian, so that the library may have a definite place in the school organization as a department on an equal footing with the other departments but intimately associated with all.

II. Regarding curricula:

1. That the quantitative requirement for graduation be 18 units of which music and physical training shall count 2.—The physical training to be given twice a week in two consecutive periods.

2. That all subjects offered in a given school be classified in a "program of studies", and that from this program curricula or courses be arranged, allowing for much option within each curriculum. The following curricula which have already had some consideration are suggested, together with a statement in general terms of the units that may be required:

A. *Household Arts*: Required units, 11; Elective, 5.

Required:	Elective:
English, 3	English, 1
Art, 2 (4 yrs.)	Science, 1 or 2
Science, 2	History, 1 or 2
History, 2	Mathematics, 1 or 2
Household Arts (4 yrs.)	Language, 2, 3 or 4
Music, 1	Art Appreciation, 1
Physical Training, 1	Theory of Music, 1
	Economics, ½
	Commercial Law, ½
	Commercial Geog., ½

B. *Manual Training*: Required, 13; Elective, 3.

Required:	Elective:
English, 3	English, 1
Science, 2	Science, 1 or 2
History, 2	History, 1 or 2
Mathematics, 2	Mathematics, 1 or 2
Man. Trg., 2 (4 yrs.)	Languages, 2, 3 or 4
Mechanical Draw., 2	Economics, ½
Music, 1	Commercial Geog., ½
Physical Trg., 1	Commercial Law, ½
	Art Appreciation, 1
	Theory of Music, 1

C. *Fine Arts.* 1. *Drawing*: Required, 14; Elective, 2.

Required:	Elective:
English, 4	Science, 1, 2 or 3
Science, 1	Foreign Language, 1 or 2
Art, 3	History, 1
Foreign Language, 2	Mathematics, 1 or 2
History, 3	Economics, ½
Art Appreciation, 1	Commercial Law, ½
Music, 1	Commercial Geog., ½
Physical Training, 1	Theory of Music, 1
	Cooking, 1
	Sewing, 1

D. *Fine Arts.* 2. *Music*: Required, 13; Elective, 3.

Required:	Elective:
English, 4	Science, 1, 2 or 3
Science, 1	Foreign Language, 1 or 2
Musical Theory, 3	History, 1
Foreign Language, 2	Mathematics, 1
History, 3	Art, 1
Music, 1	Music, 1 or 2
	Economics, ½
	Commercial Law, ½
	Commercial Geog., ½
	Cooking, 1
	Sewing, 1

E. *General*: Required, 10; Elective, 4.

Required:	Elective:
English, 4	Science, 1 or 2
Science, 2	History, 1
History, 3	Mathematics, 1, 2 or 3
Mathematics, 1	Foreign Language, 2, 3 or 4
Music, 1	Cooking, 1 (2 yrs.)
Physical Training, 1	Sewing, 1 (2 yrs.)
	Manual Training, 1
	Mechanical Drawing, 1
	Art, 2 (Drawing)
	Commercial Geog., ½
	Commercial Law, ½
	Economics, ½
	Art Appreciation, 1
	Manual Theory, 1

F. *Commercial*: 4 year. Required, 8; Elective, 8.

Required:	Elective:
English, 3	English, 1
History, 2	Foreign Language, 2, 3 or 4
Arith. and Penmanship, 1	Mathematics, 1 or 2
Bookkeeping, 1	History, 1 or 2
Commercial Law, ½	Economics, ½
Commercial Geog., ½	Manual Training, 1 or 2
Music, 1	Commercial Art, 1
Physical Training, 1	Stenography, 2
	Typewriting, 1
	Bookkeeping, 1
	Principles of Salesmanship, ½
	Principles of Advertsing, ½